

**Clean Listing of Claims:**

1. Metal complex of the general formula M(L)<sub>n</sub>, wherein M is metal selected from the transition metals, each L is independently selected and represents a ligand, at least one L is vitamin B<sub>12</sub> (cyanocobalamin) or a derivative thereof which is bound through the nitrogen atom of its cyanide group to M, thus, forming a M-NC-[Co] moiety, wherein [Co] represents vitamin B<sub>12</sub> or its derivative without cyanide, and wherein n is 1, 2, 3, 4, 5 or 6.
2. Metal complex as claimed in claim 1, wherein M is technetium, ruthenium, rhodium, rhenium, palladium, platinum, iridium or copper.
3. Metal complex as claimed in claim 1, wherein M is a radioisotope of rhenium or technetium.
4. Metal complex as claimed in claim 1, wherein n is 4, 5 or 6, and three occurrences of L are carbonyl groups (CO's).
5. Metal complex as claimed in claim 18, wherein the bidentate ligand comprises two aliphatic and aromatic amine parts, two aliphatic or aromatic amine parts, or one aliphatic or aromatic amine part and an anionic group.
6. Metal complex as claimed in claim 18, wherein the bidentate ligand is selected from  $\alpha$ -amino acids or derivatives of picolinic acid.
7. Metal complex as claimed in claim 1, wherein M is platinum, and L is independently selected from ligands containing N, S, P, O, C as the metal binding atom or any other donor with one non-binding electron pair available for coordination to the metal.
8. Metal complex as claimed in claim 4, wherein an occurrence of L is a bidentate ligand coupled to a molecule selected from the group consisting of fluorescing agents, optical dyes, NIR dyes, phosphorescent dyes, and pharmacophores.
9. Metal complex as claimed in claim 8, wherein the bidentate ligand is coupled to a fluorescing agent selected from the group consisting of fluoresceine, pyrene, acridine, and dansyl.
10. Metal complex as claimed in claim 8, wherein the bidentate ligand is coupled to a pharmacophores selected from the group consisting of tamoxifen, methotrexate and

cyclophosphamid.

11. (Cancelled).

12. Process for preparing a metal complex, comprising:

mixing vitamin B<sub>12</sub> or a derivative thereof with a precursor complex of the general formula M(L)<sub>n-1</sub>L', wherein M is a transition metal, n is 2, 3, 4, 5 or 6, L' is a ligand to be substituted by the vitamin B<sub>12</sub> or the derivative thereof, and each L is independently selected and is a ligand.

13. Precursor complex for use in the preparation of metal complex of claim 1 and having the general formula M(L)<sub>n-1</sub>L', wherein M is a transition metal, n is 2, 3, 4, 5 or 6, L' is a ligand to be substituted, and each L is independently selected and is a ligand .

14. (Cancelled).

15. Use of a metal complex of claim 1 in radiodiagnostics, chemotherapy or radionuclide therapy.

16. Metal complex as claimed in claim 1, wherein M is a catalytically active metal.

17. Metal complex as claimed in claim 3, wherein M is <sup>99m</sup>Tc, <sup>188</sup>Re, or <sup>186</sup>Re.

18. Metal complex as claimed in claim 4, wherein an occurrence of L is a bidentate ligand.

19. Metal complex as clamed in claim 4, wherein an occurrence of L is a bidentate ligand coupled to a metal complex, a biologically active molecule or a fluorescing agent.

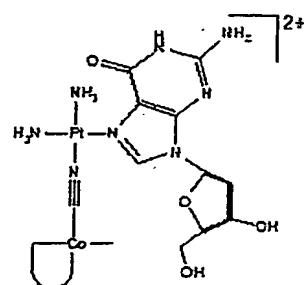
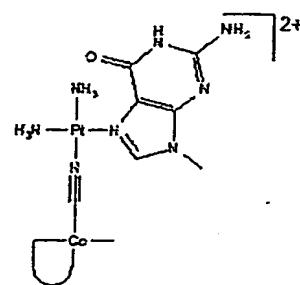
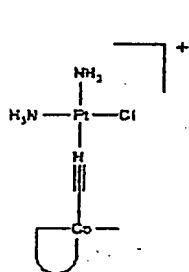
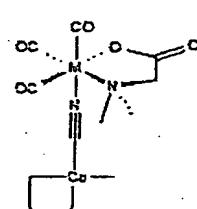
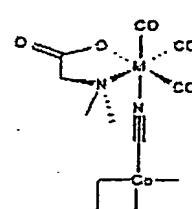
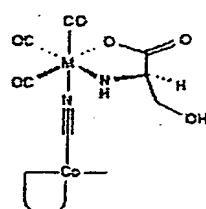
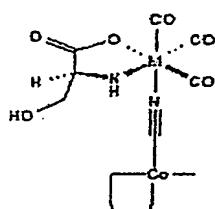
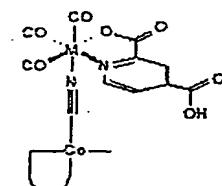
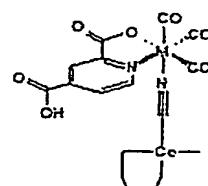
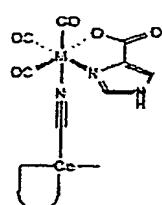
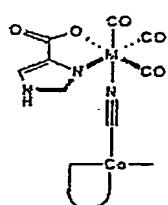
20. Metal complex as claimed in claim 5, wherein the bidentate ligand comprises one aliphatic or aromatic amine part and an anionic group, wherein the anionic group is a carboxylate, a thiolate or a hydroxylate.

21. Metal complex as claimed in claim 1, wherein M is platinum, L is independently selected from:

ligands containing N, S, P, O, C as the metal binding atom or any other donor with one non-binding electron pair available for coordination to the metal; and

ligands containing N, S, P, O, C as the metal binding atom or any other donor with one non-binding electron pair available for coordination to the metal coupled to another metal complex, a biologically active molecule, or a fluorescing molecule.

22. Metal complex as claimed in claim 1 having a structural formula selected from the group consisting of:



23. Precursor complex as claimed in claim 13 having a structural formula selected from the group consisting of:

